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PRC

February 10, 1995

Ms. Jeanne Griffin
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: **South Dayton Dump**
Moraine, Ohio
EPA Identification No. OHD 980 611 388
Focused Site Inspection Prioritization
Contract No. 68-W8-0084, Work Assignment No. 35-5JZZ

Dear Ms. Griffin:

PRC Environmental Management, Inc. (PRC), has prepared the site evaluation report (SER) for the above-referenced site (Enclosure 1). PRC reviewed available information, conducted a site reconnaissance, and prepared a preliminary Hazard Ranking System (HRS) score for the South Dayton Dump (SDD) site. Based on PRC's findings, the preliminary HRS score for the site is greater than 28.50.

This score is based on the assumption that observed releases to the groundwater and surface water pathways could be documented. During a 1991 screening site inspection (SSI) conducted by Ecology & Environment, Inc. (E&E), no groundwater or surface water samples were collected. Because an extensive sampling effort would be required to determine whether an observed release to groundwater or surface water has occurred, PRC recommends that an expanded site inspection (ESI) be conducted at the SDD site. The ESI should include installation and sampling of groundwater monitoring wells as well as surface water sampling.

The groundwater pathway score is primarily driven by the inclusion of the target population served by standby municipal wells. These wells were last used in 1987 and 1988. If this population were excluded, the groundwater pathway score would significantly decrease. Also, environmentally conservative assumptions regarding observed releases and waste quantities have been used to calculate the overall site score.

Photographs taken during the site reconnaissance are included in the appendix of the SER. The U.S. Environmental Protection Agency (EPA) recommendation form is included in Enclosure 2. The SDD site preliminary HRS score is documented in a transmittal memorandum and preliminary scoresheets in Enclosure 3.

ENCLOSURE 1

FOCUSED SITE INSPECTION PRIORITIZATION
SITE EVALUATION REPORT

SOUTH DAYTON DUMP
MORAINE, OHIO

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FOCUSED SITE INSPECTION PRIORITIZATION
SITE EVALUATION REPORT

SOUTH DAYTON DUMP
1976 SPRINGBORO ROAD
MORAINE, OHIO

OHD 980 611 388

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Site Assessment Section
77 West Jackson Boulevard
Chicago, IL 60604

Date Prepared	:	February 10, 1995
EPA Region	:	5
Contract No.	:	68-W8-0084
Work Assignment No.	:	35-5JZZ
PRC Project No.	:	030-003539
Prepared by	:	PRC Environmental Management, Inc. (Jack Brunner)
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CONTENTS

FIGURES

1.0 INTRODUCTION

Under Contract No. 68-W8-0084, Work Assignment No. 35-5JZZ, PRC Environmental Management, Inc. (PRC), has evaluated the South Dayton Dump (SDD) site in Moraine, Montgomery County, Ohio, as a potential candidate for the National Priorities List (NPL) and has prepared this site evaluation report. Using the Hazard Ranking System (HRS), PRC performed focused site inspection prioritization (FSIP) activities for the site to determine whether, or to what extent, it poses a threat to human health and the environment. This report presents the results of PRC's evaluation and summarizes the site conditions and targets pertinent to the migration and exposure pathways associated with the site. Information was obtained from the preliminary assessment (PA) and screening site inspection (SSI) report for the SDD site as well as from U.S. Environmental Protection Agency (EPA) and Ohio Environmental Protection Agency (OEPA) files. Also, on December 12, 1994, PRC conducted a site reconnaissance to gather additional information. During the reconnaissance, the PRC field team interviewed Mr. Alcine Grillot, SDD site owner and operator, and photographed various site features.

This report has five sections, including this introduction. Section 2.0 describes the site and provides a brief site history. Section 3.0 provides information about previous investigations conducted at the site. Section 4.0 provides information about the four migration and exposure pathways (groundwater migration, surface water migration, soil exposure, and air migration) that can be scored. Section 5.0 summarizes conditions at the site. References used in the preparation of this report are listed at the end of the text. In addition, the appendix to this report contains photographs taken during the site reconnaissance.

2.0 SITE DESCRIPTION AND HISTORY

This section describes the SDD site and discusses its operating history. This discussion is primarily based on information provided in the 1991 SSI report (E&E 1991) and information obtained during the site reconnaissance.

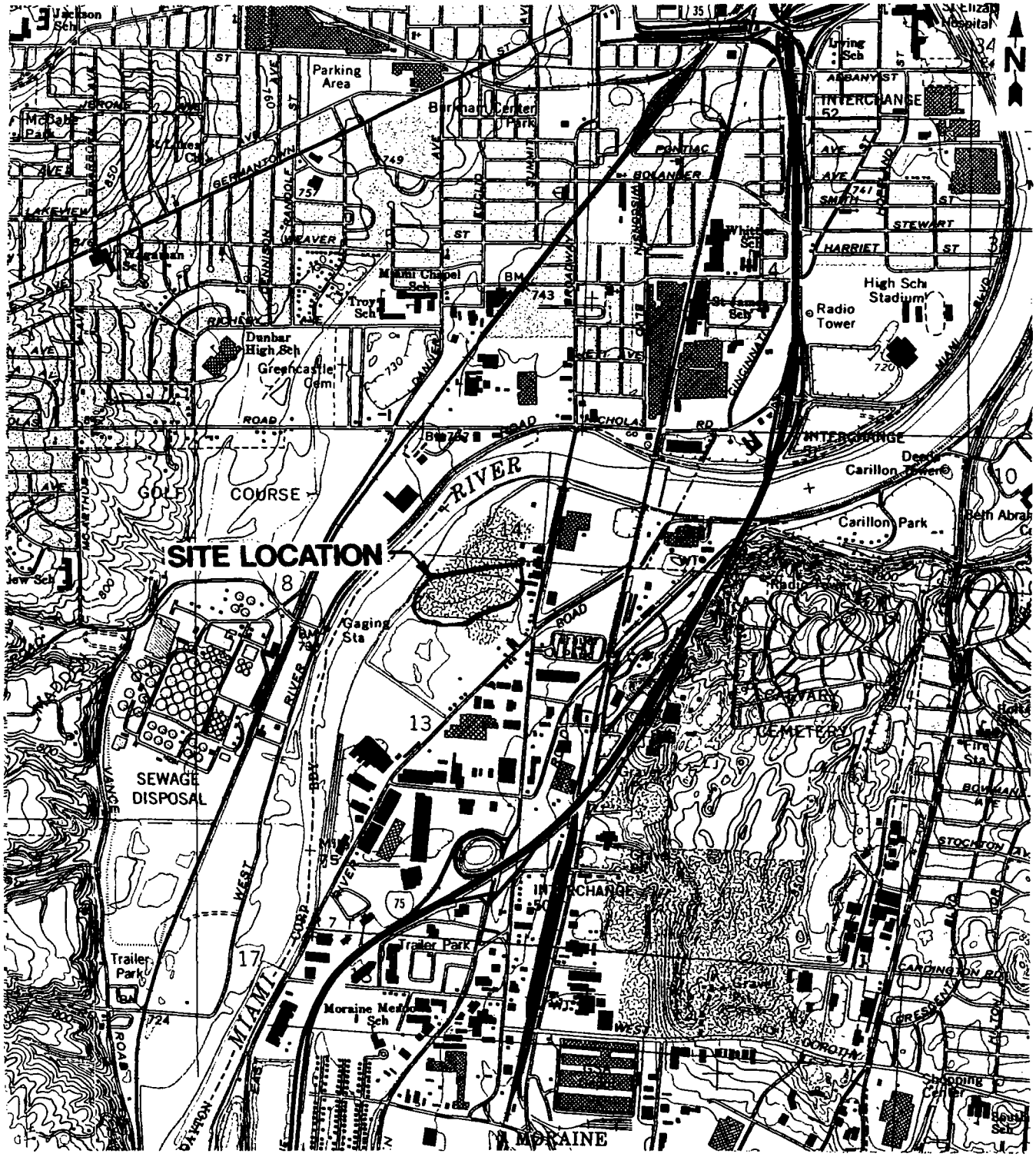
2.1 SITE DESCRIPTION

The SDD site is located at 1976 Springboro Road (also known as Dryden Road), in Moraine, Montgomery County, Ohio (latitude 39°43'34.0" N; longitude 81°13'17.0" W). The site is located in a primarily industrial area, with the nearest residences in a trailer park located about 0.25 mile southeast of the site. The site is bordered on the north by a former auto salvage yard, an asphalt plant and asphalt storage pile, and light industrial facilities (see Photograph No. 1); on the east by Springboro Road and light industrial facilities; on the south by a pallet manufacturing and repair company and a gravel pit that is filled with water; and on the west by a flat, grassy area that contains a bicycle trail and through which runs the Great Miami River (GMR). The grassy area between the site and the GMR is about 350 feet wide and is considered a flood plain by the Federal Emergency Management Agency (E&E 1991). The topography slopes downward from the site boundary toward both the grassy area and the gravel pit. The site's location is shown in Figure 1.

The site is an active dump that occupies about 30 acres of a 40-acre parcel of land. Of the northern 10 acres of the 40-acre parcel, 8 acres was leased to the former auto salvage yard until 1994 and is now vacant except for an asphalt pile, and about 2 acres is leased to a small fabricating company. The site topography is fairly level except for a depression toward the west end of the site (see Photographs No. 2 and 3) and a dry ravine along the southeast border (see Photograph No. 4). A locked entrance gate to the site is located along the east boundary and allows access from Springboro Road. Several trailers, most of which appeared to be abandoned during the site reconnaissance, are located west of the entrance gate. The unpaved north access road extends along the site's north boundary and curves around to the southwest portion of the site (see Photograph No. 5). Another dirt road extends south from the north access road across the center of the site. During the site reconnaissance, the central portion of the site appeared to be the only area of active dumping (see Photograph No. 6 and 7). Figure 2 shows the site layout.

2.2 SITE HISTORY

Landfill operations in the area of the SDD site began as a means of filling numerous gravel pits in the area. In 1935, Cyril Grillot and Katherine Boesch purchased the site, which remained inactive

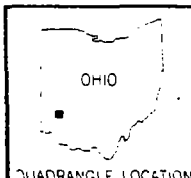


SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

SCALE: 1" = 2,000'



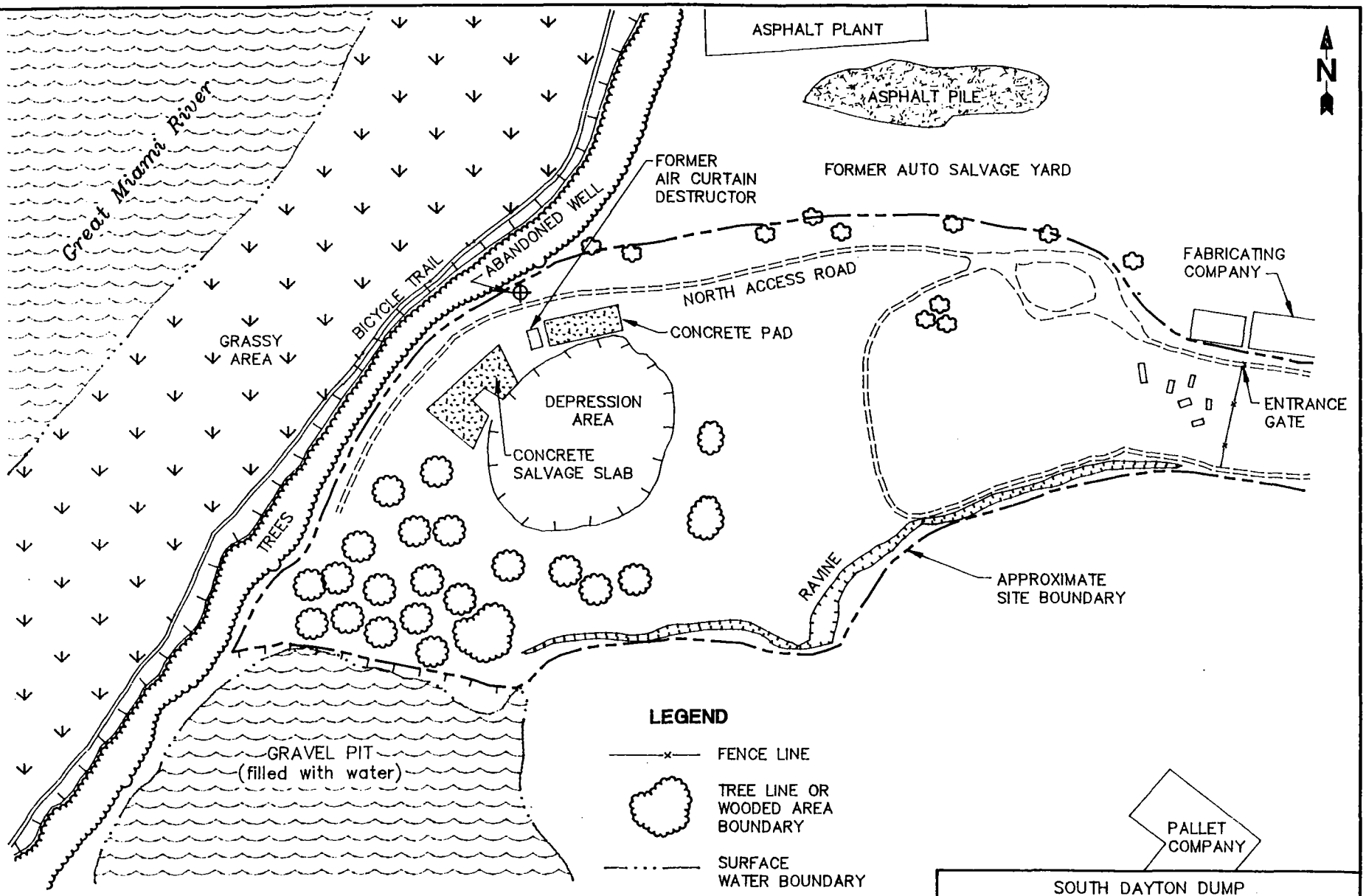
QUADRANGLE LOCATION

SOUTH DAYTON DUMP
MORAINE, OHIO

FIGURE 1
SITE LOCATION

ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: MODIFIED FROM USGS,
DAYTON SOUTH, OHIO, QUADRANGLE, 1981



SOURCE: MODIFIED FROM E&E 1991

NOT TO SCALE

SOUTH DAYTON DUMP
MORAINE, OHIO

FIGURE 2
SITE LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

SODAYDMP.DWG – 02/09/95 – RAO – 030-0035390

until about 1941, when these partners began operating a dump on site. Cyril Grillot's brother, Alcine Grillot, has owned and operated the site since about 1950 (E&E 1991).

Before 1970, the primary disposal practice at the site was open burning of materials, primarily vegetation and wood wastes. Landfilling was a secondary disposal practice. According to the SSI report, drummed wastes were occasionally accepted at the site between 1950 and 1970. The drums were emptied of their contents and either buried or sold to drum recyclers. Details regarding where the drum contents were disposed of, the types of drummed wastes accepted, the quantities of drummed wastes, and the frequency of dumping are not available because records were not kept (E&E 1991). During its site reconnaissance, PRC noted evidence of several drums, some of which were empty and some that still held their nonliquid contents (see Photographs No. 3, 4, 5, and 8).

In 1970, because of legislation prohibiting open burning, this practice ceased at the site (E&E 1991). At that time, Alcine Grillot formed Moraine Recycling, Inc. (MRI), which operated on site. MRI developed and constructed a furnace-like device to burn vegetation and wood wastes; the device was called an "air curtain destructor." According to the Montgomery County Combined General Health District (MCCGHD), the device was not an incinerator but rather a "controlled open burning device," and it was to be operated under a special open burning permit (MCCGHD 1970). The Montgomery County Health Department (MCHD) acknowledged MRI's permit application for the air curtain destructor and recommended starting up the device as soon as possible for experimental shakedown. During this period, operation of the device was covered by open burning permits (MCHD 1970). After the permit applications were submitted, several trial burns of the device were initiated. However, because the Ohio Department of Health never granted final approval of the permit, the project was abandoned. During the site reconnaissance, PRC noted that the air curtain destructor was still on site but appeared to be inoperable (see Photographs No. 9 and 10).

According to OEPA documents, hazardous wastes were accepted at the site between June 1973 and July 1976. Drums containing hazardous waste from two nearby Hobart Corporation (Hobart) facilities in Dayton, Ohio, were transported to the site and nearby Blaylock Landfill (Hobart 1984). The drums were transported by Joseph Syspeck, who acted as a disposal broker and waste hauler for Hobart. About 15 55-gallon drums of waste per month were transported from Hobart to one or both of the disposal facilities during this time. The drums contained cleaning solvents

(1,1,1-trichloroethane [TCA]; methyl ethyl ketone [MEK]; and xylene); cutting oils; paint; Stoddard solvents; and machine-tool, water-based coolants (OEPA 1985). In May 1978, MCCGHD and OEPA conducted an inspection of the site and noted several problems, including the presence of containers labeled 'hazardous" (MCCGHD 1978).

Further evidence of hazardous waste disposal at the SDD site comes from a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Notification of Hazardous Waste Site Form submitted by Industrial Waste Disposal Company, Inc. (IWD). This notification was submitted on June 9, 1981, and indicates that the site had been used as a disposal facility for the industrial and municipal wastes of IWD's customers. The notification does not include information concerning quantities of wastes, specific types of wastes, or dates of disposal (IWD 1981).

The site currently operates under a solid waste disposal permit issued by MCHD. This permit allows disposal of solid, inert, insoluble materials such as unregulated foundry sand, slag, glass, and demolition debris. There is apparently no liner at the site (E&E 1991). According to Alcine Grillot, SDD's only customer is the General Motors Corporation Delco-Moraine Plant (GMC), which is located about 0.5 mile northeast of the site. The GMC wastes disposed of at the site primarily include wooden pallets, concrete, and scrap wood.

3.0 PREVIOUS INVESTIGATIONS

In 1985, OEPA conducted a PA at the SDD site (OEPA 1985). Based on the findings of this PA, particularly evidence of chemical and hazardous wastes being disposed of at SDD, EPA Field Investigation Team (FIT) conducted an SSI at the site. In 1991, EPA FIT collected 11 soil samples at and near the site (E&E 1991). Soil sample S10 was collected 200 feet north of the site and about 350 feet west of the former auto salvage yard; therefore, this sample is considered to be a potential background sample. The analytical results obtained for the soil samples and figures showing the sampling locations are provided in the attachment to this report.

Hazardous substances were detected in on-site soil samples at levels significantly above background (soil sample S10). For example, the following substances were detected at the concentrations indicated:

- 1,2-Dichloroethene at 200 micrograms per kilogram (μg/kg) in soil sample S8
- Tetrachloroethene at 11 μg/kg in soil sample S8
- Toluene at 7 μg/kg in soil sample S5
- Polychlorinated biphenyls (PCB), including Aroclor 1248 and Aroclor 1260 at 4,200 and 2,800 μg/kg, respectively, in soil sample S2
- Antimony at 31.6 milligrams per kilogram (mg/kg) in soil sample S3
- Arsenic at 69.3 mg/kg in soil sample S9
- Barium as high as 991 mg/kg in soil sample S1
- Cadmium as high as 14 mg/kg in soil sample S3
- Chromium at 91.7 mg/kg in soil sample S3
- Mercury as high as 0.31 mg/kg in soil sample S3
- Nickel as high as 402 mg/kg in soil sample S8
- Lead as high as 3,300 mg/kg in soil sample S3
- Zinc as high as 2,350 mg/kg in soil sample S3

Additionally, several polynuclear aromatic hydrocarbons (PAH) were detected in several soil samples. Phenanthrene, benzo[a]anthracene, and benzo[a]pyrene were detected at concentrations as high as 16,000, 8,500, and 5,700 μg/kg, respectively, in soil sample S3; and fluoranthene was detected at 21,000 μg/kg in soil sample S6 (E&E 1991). In addition to past disposal practices at the site, the PAHs may be attributable to the presence of the nearby asphalt plant and pile.

FIT did not collect groundwater, surface water, or air samples as part of the SSI activities at the site. Originally, the SSI was to include installation of monitoring wells; however, changes in the EPA Pre-Remedial Program strategy dictated that the monitoring wells not be included (E&E 1991).

4.0 MIGRATION AND EXPOSURE PATHWAYS

This section describes the four migration and exposure pathways associated with the SDD site. Section 4.1 discusses the groundwater migration pathway; Section 4.2 discusses the surface water migration pathway; Section 4.3 discusses the soil exposure pathway; and Section 4.4 discusses the air migration pathway.

4.1 GROUNDWATER MIGRATION PATHWAY

This section discusses geology and soils, groundwater releases, and targets associated with the groundwater migration pathway at the site.

4.1.1 Geology and Soils

The Moraine and Dayton, Ohio, area overlies a pre-Pleistocene river valley known as Teays Valley. Pleistocene-age glaciers filled this 200- to 400-foot-deep bedrock valley with sand and gravel outwash (E&E 1991).

The thickness of the glacial material in the area of the SDD site varies from 150 to 250 feet. Generally, the glacial deposits are thicker near the GMR, but for several miles on either side of the river, the deposits may extend to only 25 feet below ground surface (bgs). The glacial material consists of poorly sorted clay and sand and gravel. Clay within the glacial material occurs as discontinuous lenses. As a result, surface water and shallow groundwater may migrate downward through the glacial deposits to the bedrock. The bedrock is an Ordovician shale located directly beneath the glacial deposits at about 150 to 250 feet bgs. The entire glacial sequence constitutes a single aquifer because the clay lenses of the sequence do not form a continuous, impermeable confining layer (E&E 1991).

According to area well logs, static water levels vary from about 20 to 45 feet bgs. Groundwater flow in the site area is likely to the west, toward the GMR. The depth to groundwater may be affected by seasonal variations because of the site's proximity to the river. Because the GMR may act as a recharge and discharge zone in the site area, groundwater flow may also be influenced by the river's

flowing south, which may cause the groundwater flow direction to be more to the west-southwest (E&E 1991). Additionally, based on PRC's observations during the site reconnaissance, groundwater may be discharging to the water-filled gravel pit located immediately southwest of the site.

4.1.2 Groundwater Releases

No releases of hazardous substances from the SDD site to groundwater have been documented. However, no groundwater samples were collected during the SSI. Originally, the SSI was to include installation of monitoring wells; however, changes in the EPA Pre-Remedial Program strategy dictated that the monitoring wells not be installed (E&E 1991). Additionally, as discussed in Section 2.2, hazardous substances have apparently been disposed of at the site. Furthermore, as discussed in Section 3.0, elevated concentrations of several hazardous substances were detected in on-site soil samples (E&E 1991). These hazardous substances and contaminants may pose a threat to groundwater in the vicinity of the site because no liner is known to exist at the site and thus wastes may have come in direct contact with the water table. Information regarding the exact depth of waste disposal at the site is not available.

4.1.3 Targets

Residents within a 4-mile radius of the SDD site use groundwater as their primary source of drinking water. Residents obtain their water primarily from municipal sources. The City of Dayton and most of Montgomery County obtain water from the 100 production wells of the City of Dayton municipal well system. This system provides drinking water to about 420,000 people, but its wells are located more than 4 miles from the site (PRC 1994c). The City of Moraine receives its water from Montgomery County, which receives its water from the City of Dayton.

Montgomery County maintains standby wells between 2 and 3 miles from the site. These wells are located at the following four well fields: Lamme Road, Dryden Road North, Dryden Road South, and Miami Shores. All four well fields have been used for standby purposes; however, the Lamme Road well field is being abandoned, and because both Dryden Road well fields have shown contamination, their future is uncertain. Only the Miami Shores wells are currently maintained for standby use (PRC 1994b; 1995c).

The Miami Shores wells are used only for emergency purposes, such as in the event that the City of Dayton municipal well system experiences a water shortage. In such an event, these wells would serve about 117,480 people; this estimate is based on a total of 47,182 services and a population density of 2.49 persons per household (PRC 1994b, 1995a, 1995b). However, water from these wells would be blended with City of Dayton water before distribution and would constitute about 10 percent of the water distributed. Additionally, the 47,182 services include both industrial and residential users (PRC 1995c). Montgomery County standby wells were last used in 1987 and 1988 (PRC 1994b).

Two communities within a 4-mile radius of the site routinely draw groundwater for public distribution. The City of Oakwood has wells located between 2 and 3 miles from the site. Oakwood pumps about 1.4 million gallons per day (gpd) of water from seven production wells and blends its water with a small percentage (about 6 percent) of Dayton water to provide water to about 9,500 people (PRC 1994d). Also, the City of West Carrollton has wells located between 3 and 4 miles from the site that provide water to about 15,000 people (PRC 1994e). The site is also located within a secondary designated wellhead protection area (MVRPC 1990).

Additionally, 1990 census data indicates that some residents within 4 miles of the site obtain their drinking water from private wells. The nearest private well is located within 0.25 mile of the site. A total of about 560 people living within a 4-mile radius of the site obtain their drinking water from private wells (Frost Associates 1994). Many area facilities also use groundwater for industrial purposes.

According to available well logs, area wells are screened primarily in the sand and gravel aquifer. Therefore, the total population within 4 miles of the site estimated to be routinely subject to potential contamination from the site is about 25,060. However, if it became necessary for Montgomery County to use its standby wells, this population would increase to about 36,800. Assuming that groundwater flows to the west-southwest in the area, no drinking water wells are located downgradient of the site between the site and the GMR.

4.2 SURFACE WATER MIGRATION PATHWAY

This section discusses the migration route, surface water releases, and targets associated with the surface water migration pathway at the site.

4.2.1 Migration Route

Surface soil contamination associated with the site could potentially migrate via overland water flow or flooding. Two surface water bodies lie in the immediate vicinity of the SDD site: the GMR and an excavated gravel pit that is filled with water. A small wetland area is also apparently located on site in the depression area.

The GMR is located about 350 feet west of the site (see Photograph No. 11). The topography between the site and the river gradually slopes toward the river. No barriers or containment structures are present at the site to prevent overland flow of contaminants toward the river. Additionally, the area between the site and the GMR lies within a 100-year flood plain (E&E 1991). The 63-year average flow rate of the river in the vicinity of the site is 2,208 cubic feet per second (cfs) (USGS 1994).

The gravel pit filled with water immediately borders the southwest boundary of the site (see Photographs No. 12 and 13). No barriers or containment structures are present at the site to prevent overland flow of contaminants toward the gravel pit. This gravel pit has an area of 10 to 15 acres (USGS 1981). The National Wetlands Inventory (NWI) classifies the pit as a palustrine, unconsolidated-bottom, intermittently exposed, excavated wetland (DOI 1988).

According to the NWI, a wetland area of less than 1 acre is also located on site. This wetland is apparently located in the depression area and is classified as palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded, and excavated (DOI 1988). PRC noted no obvious wetland vegetation, such as cattails or willows, during its site reconnaissance.

4.2.2 Surface Water Releases

No releases from the SDD site to surface water have been documented. However, the contaminants detected in on-site surface soil could potentially migrate toward nearby surface water bodies via overland flow or flooding. During the site reconnaissance, Alcine Grillot stated that the site has flooded. Additionally, if groundwater contamination exists, contaminants could reach these surface water bodies via groundwater to surface water discharge.

4.2.3 Targets

No surface water intakes for drinking water withdrawal exist within 15 miles downstream of the SDD site along the GMR, but several intakes exist for industrial water withdrawal. The GMR is used for recreational purposes, including fishing. An estimated 5,000 pounds of fish is caught and consumed annually within 15 miles downstream of the site. Also, a fishing advisory for bottom-feeding fish exists because of the presence of PCB contamination in the GMR (PRC 1994a). Additionally, between 1 and 2 linear miles of wetland habitat exists along the GMR within 15 miles of the site (NWI 1988). No endangered or threatened species are known to exist in habitats in or along the river (USFW 1994).

No surface water intakes for drinking water withdrawal exist at the gravel pit filled with water. However, during the site reconnaissance, Alcine Grillot stated that the pit is occasionally used for recreational activities, including fishing.

4.3 SOIL EXPOSURE PATHWAY

As discussed in Section 3.0, soil samples collected during the 1991 SSI indicate that 1,2-dichloroethene; tetrachloroethene; toluene; PCBs; antimony; arsenic; barium; cadmium; chromium; mercury; nickel; lead; zinc; and several PAHs are present at elevated concentrations in on-site surface soil (E&E 1991). Much of the SDD site is vegetated; therefore, extensive soil contamination is unlikely. Also, no residences, schools, day-care facilities, or terrestrial sensitive environments are located on site or within 200 feet of areas of suspected contamination.

However, since the site is an active dump, workers associated with the dump could come into contact with on-site soil contamination. Also, although the site access gate is kept locked, the site is not entirely fenced. Therefore, the nearby population could come into contact with on-site soil contamination because site access is not restricted.

4.4 AIR MIGRATION PATHWAY

No releases of hazardous substances from the SDD site to air have been documented. No odors or airborne particulates were noted during the site reconnaissance. The site is not known to contain sources of hazardous substances, such as open surface impoundments, leaking drums, or leaking tanks, that are likely to release hazardous gas.

5.0 SUMMARY

The SDD site is an active dump that apparently accepted hazardous waste between 1950 and 1970. The site is located in a former sand and gravel quarry as were numerous other landfills in the area. The site currently operates under a solid waste disposal permit that allows disposal of solid, inert, insoluble materials such as unregulated foundry sand, slag, glass, and demolition debris.

No releases to groundwater, surface water, or air have been documented during previous investigations at the site, including the 1991 SSI conducted by the EPA FIT. However, no groundwater, surface water, or air samples were collected during the SSI. Contaminants have been detected in on-site soil samples at levels above background. Additionally, hazardous substances were reportedly disposed of at the site in the past.

Much of the site is vegetated; therefore, extensive soil contamination is unlikely. Also, no residences, schools, day-care facilities, or terrestrial sensitive environments are located on site or within 200 feet of areas of suspected contamination. No odors or airborne particulates were noted during the site reconnaissance. The site is not known to contain sources of hazardous substances, such as open surface impoundments, leaking drums, or leaking tanks, that are likely to release hazardous gas. However, site contaminants could potentially migrate to environmental pathways,

particularly groundwater and surface water. Consequently, area residents and environmental receptors could be exposed to contaminants via these pathways.

Private residences and municipalities use groundwater as a source of drinking water within 4 miles of the site. Potential targets of contaminant migration via the groundwater pathway include private well users and people supplied with water by municipalities. About one-third of the people supplied by municipal well systems within a 4-mile radius of the site are served by a water system with a standby well field. If water from this standby well field were used, water from it would be blended with groundwater from a source (the City of Dayton well fields) located more than 4 miles from the site. The standby wells have not been used since 1988.

The GMR is not used as a source of drinking water within 15 miles downstream of the site, and this watershed does not contain a significant number of sensitive environments. However, the GMR is a fishery and is located about 350 feet from the site. Also, the site is located adjacent to the GMR flood plain.

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APPENDIX

SITE RECONNAISSANCE PHOTOGRAPHS

SOUTH DAYTON DUMP
MORAINE, OHIO

(Seven Pages)

Photograph No. 1 — Location: South Dayton Dump (SDD) site
Orientation: Northwest — Date: December 12, 1994
Description: Area of former auto salvage yard north of site, currently used for asphalt storage pile; asphalt plant also shown in left background

Photograph No. 2 — Location: SDD site
Orientation: Northeast — Date: December 12, 1994
Description: Depression in central portion of site

Photograph No. 3 Location: SDD site
Orientation: East Date: December 12, 1994
Description: Concrete salvage slab along north access road; note empty drums; depression shown in background

Photograph No. 4 Location: SDD site
Orientation: South Date: December 12, 1994
Description: Empty drums and debris in ravine along south boundary of site

Photograph No. 5 Location: SDD site
Orientation: West Date: December 12, 1994
Description: Empty drums along north access road

Photograph No. 6 Location: SDD site
Orientation: Northeast Date: December 12, 1994
Description: Overview of active portion of site; note construction debris at left; asphalt plant shown in background

Photograph No. 7 Location: SDD site
Orientation: South Date: December 12, 1994
Description: Overview of active portion of site; road shown crosses central portion of site

Photograph No. 8 Location: SDD site
Orientation: South Date: December 12, 1994
Description: Drums (center of photograph) located along southwest boundary of site; gravel pit filled with water shown in background

Photograph No. 9 Location: SDD site
Orientation: Southwest Date: December 12, 1994
Description: Concrete pad along north access road; inactive air curtain destructor shown in right background

Photograph No. 10 Location: SDD site
Orientation: South Date: December 12, 1994
Description: Inactive air curtain destructor

Photograph No. 11
Location: SDD site
Orientation: West
Date: December 12, 1994
Description: Barbed wire fence along west site boundary; topography beyond fence slopes downward toward bicycle trail; Great Miami River shown in background beyond snow-covered grassy area

Photograph No. 12
Location: SDD site
Orientation: South
Date: December 12, 1994
Description: Water-filled gravel pit; note proximity of pit to southwest boundary of site

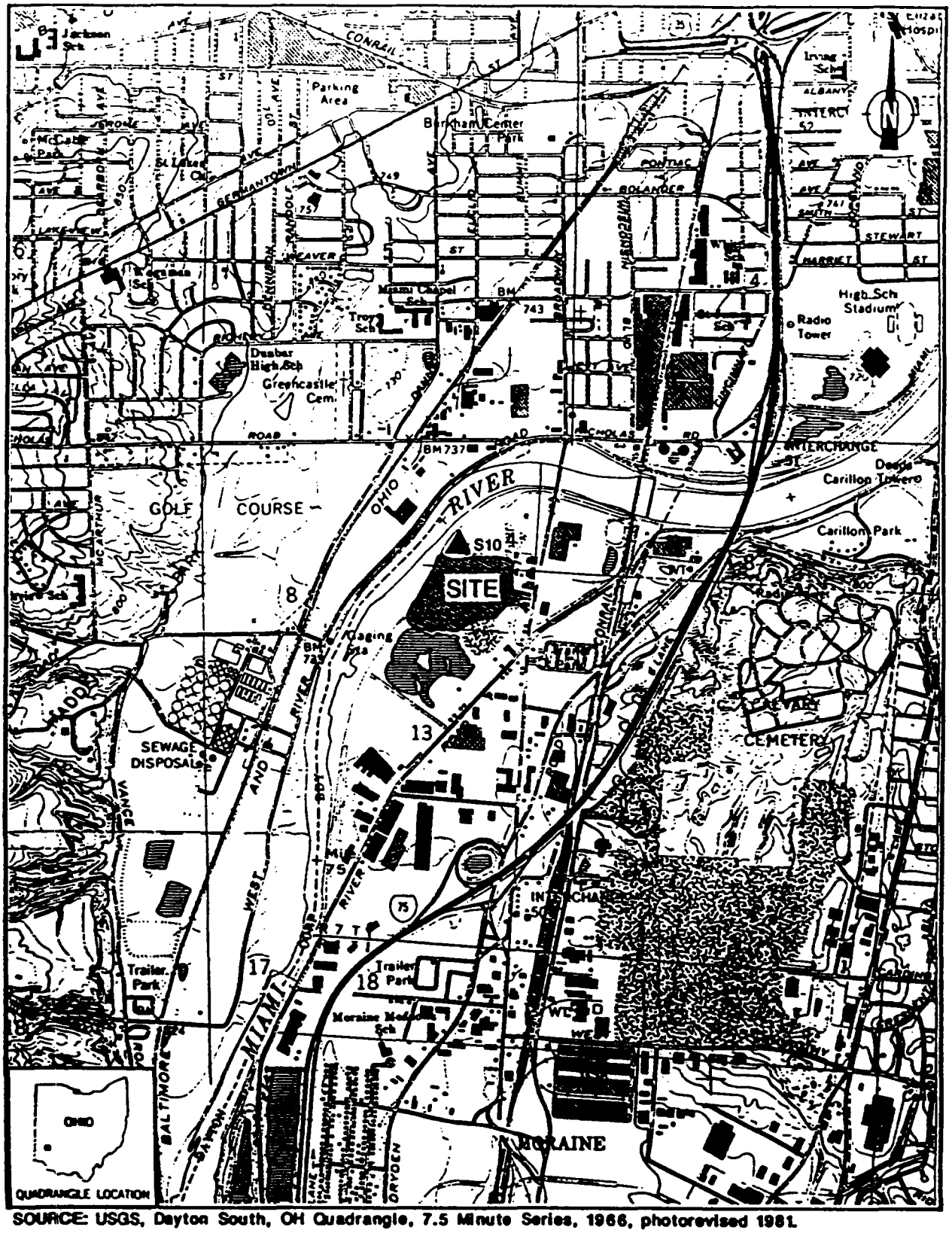
Photograph No. 13 Location: SDD site
Orientation: South Date: December 12, 1994
Description: Water-filled gravel pit located immediately southwest of site

ATTACHMENT

SCREENING SITE INSPECTION SOIL SAMPLING LOCATIONS AND ANALYTICAL RESULTS

SOUTH DAYTON DUMP
MORAINE, OHIO

(Five Pages)

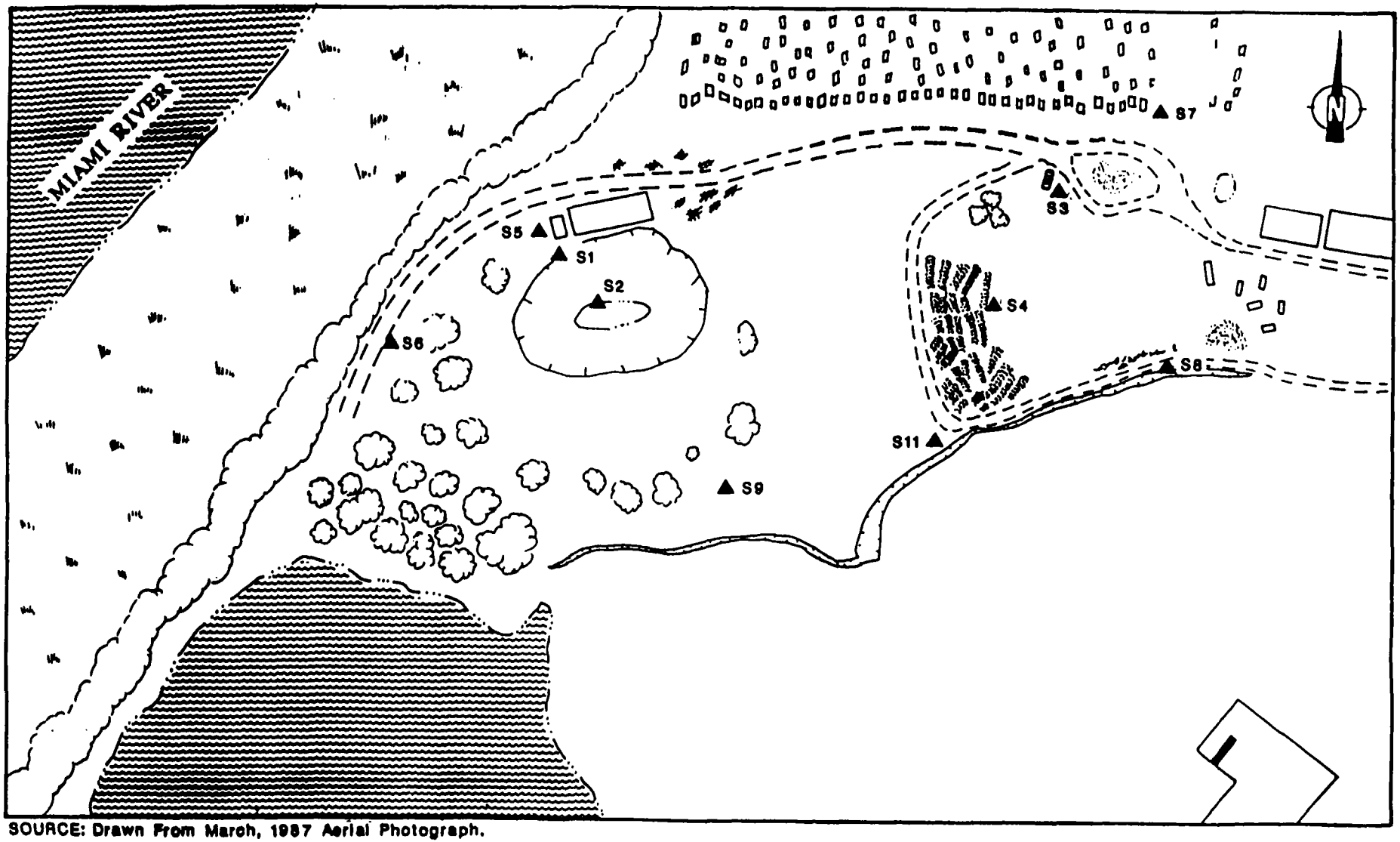


SOURCE: USGS, Dayton South, OH Quadrangle, 7.5 Minute Series, 1966, photorevised 1981

SCALE

0 ½ 1 MILE

FIGURE 3-3 OFF-SITE SOIL SAMPLING LOCATION



SOURCE: Drawn From March, 1987 Aerial Photograph.

SCALE
0 250 500 750 1000 FEET

FIGURE 3-2 ON-SITE SOIL SAMPLING LOCATIONS

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED SOIL SAMPLES

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
Date	10/23/91	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90
Time	1130	1140	1140	1150	1230	1245	1225	1235	1330	1345	1335
CLP Organic Traffic Report Number	EKS19	EKS20	EKS21	EKS22	EKS23	EKS24	EKS25	EKS26	EKS27	EKS28	EKS29
CLP Inorganic Traffic Report Number	MEHN82	MEHN83	MEHN84	MEHN85	MEHN86	MEHN87	MEHN88	MEHN89	MEHN90	MEHN91	MEHN92
Compound Detected (values in µg/kg)											
Volatile Organics											
acetone	--	--	--	--	--	25J	--	--	--	--	--
1,2-dichloroethene (total)	--	--	--	--	--	--	--	200	--	--	--
2-butanone (MEK)	2J	--	--	--	1J	--	--	--	--	--	--
trichloroethene	--	--	--	--	--	--	--	4J	--	--	--
4-methyl-2-pentanone	--	--	--	--	--	36J	--	--	--	--	--
tetrachloroethene	--	--	--	--	--	--	--	11	--	--	--
toluene	3J	--	--	--	7	9J	4J	2J	--	--	--
xylenes (total)	--	--	--	--	--	3J	--	--	--	--	--
Semivolatile Organics											
naphthalene	1,100	150	290J	--	500J	260J	450J	--	--	--	150J
2-methylnaphthalene	1,800	250J	500J	--	950	130J	750J	190J	--	--	240J
acenaphthene	--	--	680J	--	--	1,200	95J	--	--	110J	--
dibenzofuran	370J	--	830J	--	290J	780J	200J	--	--	--	--
fluorene	--	--	1,500	--	--	1,200	82J	--	--	120J	--
n-nitrosodiphenylamine	--	--	450J	--	--	--	--	--	--	--	--
phenanthrene	850J	200J	16,000D	--	980	14,000	1,500	170J	210J	1,800	540J
anthracene	120J	--	2,900	--	--	3,000	300J	--	--	340J	--
di-n-butylphthalate	--	--	--	--	--	--	110J	--	--	--	--
fluoranthene	680J	140J	12,000	--	370J	21,000B	2,800	360J	210J	2,500	980J
pyrene	580J	150J	8,100	--	300J	13,000	1,900	290J	180J	3,400	710J
butylbenzylphthalate	--	--	--	--	--	--	950	--	--	96J	--
benzo[a]anthracene	310J	74J	8,500	--	170J	6,900	1,100	--	--	1,800	430J
chrysene	380J	150J	5,700J	--	300J	6,400J	1,100J	180J	--	--	610J
bis(2-ethylhexyl)phthalate	--	--	360J	--	--	--	--	--	--	--	--
benzo[b]fluoranthene	230J	280J	9,500	--	320J	7,800	2,900	230J	150J	2,500	630J
benzo[k]fluoranthene	430J	--	6,400	--	--	5,500	--	300J	--	400J	--
benzo[a]pyrene	230J	140J	5,700	--	150J	4,800	1,100	150J	--	1,200	220J
indeno[1,2,3-cd]pyrene	96J	--	5,000	--	150J	4,100	910	160J	--	970	270J
dibenzo[a,h]anthracene	--	--	1,200	--	--	1,600	230J	--	--	110J	--
benzo[g,h,i]perylene	150J	--	4,700	--	250J	3,600	910	170J	--	990	310J
Pesticides/PCBs											
Aroclor 1248	360X	4,200X	--	--	540X	--	--	--	--	1,400X	--
Aroclor 1260	300JX	2,800X	580JX	--	110JX	--	1,400X	--	--	410X	460JX

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
TICs†											
1-methyl naphthalene (90-12-0)	1,000J	--	--	--	1,000J	--	700J	--	--	--	--
benzo[j]fluoranthene (205-82-3)	--	--	3,000J	--	--	--	1,000J	--	--	800J	--
7H-benz[d,e]anthracene-7-one (82-05-3)	--	--	--	--	--	3,000J	--	--	--	--	--
5H-indeno[1,2-b]pyridine (244-99-5)	--	--	--	--	--	700J	--	--	--	--	--
Analyte Detected (values in mg/kg)											
aluminum	5,730	3,800	4,740	3,360	1,990	4,620	2,970	5,350	11,100	10,600	8,460
antimony	--	--	31.6	--	--	--	13.2B	--	2.1B	--	18.2B
arsenic	23.9	6.8	8.3	12.6	10.3	11.1	8.9	11.6	69.3	8.1	20.1
barium	991	23.2B	157	117	81	167	130	150	190	120	265
beryllium	0.72B	--	0.7B	1.7	0.47B	2	0.72B	1.4B	5.5	0.35B	2.5
cadmium	1.3	--	14	--	1B	--	5.9	8.6	--	--	8.4
calcium	33,800	13,300	4,790	1,260	1,710	2,650	4,460	4,810	10,000	83,700	34,900
chromium	18.5	16.9	91.7	6.3	11	8.6	20.6	43	23.2	27.6	30.4
cobalt	3.7B	--	5.6B	8.8B	5B	8.2B	5.2B	6.2B	22.1	4.7B	10.9B
copper	66.8	48.9EJ	2,220EJ	56.7EJ	74.1EJ	47.4EJ	316EJ	2,200EJ	76.6EJ	37.6EJ	796EJ
iron	15,900EJ	18,000	77,000	2,840	4,230	5,630	14,800	48,300	11,100	16,300	25,500
lead	64.1	43	3,300	10.4	59.3	15.9	474	1,590	49.7	94.8	811
magnesium	6,270	7,790	2,660	294B	439B	537B	2,580	2,230	3,720	28,000	15,500
manganese	309	344	437	7.2	55.2	27	130	272	162	446	294
mercury	--	--	0.31	--	--	--	--	--	0.3	--	--
nickel	28.9	13.9	262	13.6	17.2	17.2	94.7	402	56.6	23.1	65.5
potassium	729B	308B	569B	364B	329B	429B	232B	1,030B	1,630B	1,190B	915B
selenium	2.2	1.2BWJ	0.91B	1.6	2.2	1.7	2.4	1.1BWJ	4.6	2.6	3.7
silver	--	--	--	--	--	--	--	--	--	1.1B	--
sodium	157B	123B	114B	118B	43.7B	81B	64.4B	338B	272B	136B	239B
thallium	--	--	--	--	--	--	--	--	2B	--	0.73B
vanadium	18.2	7.3B	33.9	27.9	11.5B	28.1	16	27.4	69.6	24.3	35.5
zinc	112	550	2,350	9.2	57.6	14.4	2,210	1,490	75.1	126	480

-- Not detected.

† TIC Chemical Abstracts Service (CAS) numbers, if available, are provided in parentheses.

Table 4-1 (Cont.)

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.	Alerts data user to a possible change in the CRDL. Data is quantitative.
X	Denotes manually entered data. This always occurs on multi-component quantitations and sometimes occurs on individual pesticides when the analyst had to correct the integration of a peak.	

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semiquantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.

ENCLOSURE 2

U.S. ENVIRONMENTAL PROTECTION AGENCY
RECOMMENDATION FOR THE
SOUTH DAYTON DUMP
OHD 980 611 388

(One Page)

U.S. ENVIRONMENTAL PROTECTION AGENCY RECOMMENDATION

Site Name:	South Dayton Dump Moraine, Montgomery County, Ohio
EPA ID No.:	OHD 980 611 388
Report Author:	Jack Brunner PRC Environmental Management, Inc. 312/856-8788
Contractor Project Manager:	Christopher Scott PRC Environmental Management, Inc. 312/856-8746

EPA RECOMMENDATION		**SIGNATURE**	**DATE**
"H":	High priority for further site assessment	_____	_____
"L":	Low priority for further site assessment	_____	_____
"D":	Deferred to other authority (RCRA, TSCA, or NRC)	_____	_____
"N":	No further action	_____	_____

EPA Comments:

_____

_____

_____

_____

ENCLOSURE 3

TRANSMITTAL MEMORANDUM
WITH PRELIMINARY HRS SCORESHEETS
FOR THE
SOUTH DAYTON DUMP
MORAINE, MONTGOMERY COUNTY, OHIO

(16 Pages)

MEMORANDUM

DATE: February 10, 1995

TO: Jeanne Griffin, Site Assessment Manager
U.S. Environmental Protection Agency (EPA)

FROM: Jack Brunner, PRC Environmental Management, Inc. (PRC)

SUBJECT: Focused Site Inspection Prioritization (FSIP)
Site Name: South Dayton Dump
Location: 1976 Springboro Road
Moraine, Montgomery County, Ohio
EPA ID No.: OHD 980 611 388

THIS DOCUMENT IS CONFIDENTIAL. Because of their predecisional nature, this memorandum and the attached preliminary Hazard Ranking System (HRS) scoresheets are not to be released to the public.

The FSIP report accompanies this transmittal memorandum and the preliminary HRS scoresheets.

The site has been evaluated to determine the need for immediate removal action as a result of a substantial threat to human health and the environment. PRC recommends the following:

_ The site **does** present a threat that requires immediate removal action.

X The site **does not** present a threat that requires immediate removal action.

PRC has prepared the attached preliminary HRS scoresheets for the above-referenced site.

_ The preliminary HRS score is **below** 28.50.

X The preliminary HRS score is **above** 28.50.

Following is a summary of factors affecting the preliminary HRS pathway scores.

The South Dayton Dump (SDD) site is an active dump, or landfill, that apparently accepted hazardous waste between 1950 and 1970. The site is located in a former sand and gravel quarry as were numerous other landfills in the area. The site currently operates under a solid waste disposal permit that allows disposal of solid, inert, insoluble materials such as unregulated foundry sand, slag, glass, and demolition debris. A screening site inspection (SSI) that included only surface soil sampling was conducted on site in 1991.

The SDD site receives a preliminary HRS score of 65.04. This score assumes that observed releases of hazardous substances with a toxicity of 10,000 and a bioaccumulation factor value of 500 or greater could be established if groundwater and surface water samples were collected at the site. During the SSI, hazardous substances that meet these criteria were detected at elevated levels in on-site surface soil samples. Also, environmentally conservative assumptions were incorporated into the waste quantity factor value used to calculate the preliminary HRS score.

WASTE CHARACTERISTICS

PRC assumed that observed releases of hazardous substances with a toxicity of 10,000 and a bioaccumulation factor value of 500 or greater could be established. A waste quantity factor value was conservatively assigned based on the estimated surface area of the site, which is about 30 acres (1,306,800 square feet), because detailed information about waste quantities and the depth of the landfill is not available.

GROUNDWATER MIGRATION PATHWAY

The preliminary groundwater migration pathway score of 83.20 is based on an observed release of a hazardous substance with a toxicity value of 10,000. This observed release has not been documented but was assumed to have occurred because several such substances were detected in on-site surface soil samples. No groundwater samples were collected during the 1991 SSI. Also, no liner is present at the site, and groundwater is present at about 25 feet below ground surface. Therefore, PRC assumed that an observed release to groundwater could be documented with the installation and sampling of monitoring wells.

All groundwater targets are subject to potential contamination. Private residences and municipalities use groundwater as a source of drinking water within the 4-mile target distance limit (TDL). Potential targets of contaminant migration via the groundwater pathway include 562 private well users and 36,248 people supplied with water by municipalities.

Of the 36,248 people supplied by municipalities, 11,748 people are apportioned from a total of 117,483 people served by a water system with a standby well field. If water from this standby well field were used, it would be blended with groundwater from a source (the City of Dayton well fields) not within the 4-mile TDL. This apportioning is based on an estimated 10 percent standby well contribution to the total water supply that would be used in the event of an emergency. The standby wells have not been used since 1988.

The groundwater pathway score is primarily driven by the inclusion of the population served by the standby wells. If this population were excluded, the groundwater pathway score would decrease to 42.88.

SURFACE WATER MIGRATION PATHWAY

The preliminary surface water migration pathway score of 100 is based on an observed release of a hazardous substance with a toxicity of 10,000, an ecotoxicity of 50,000, and a bioaccumulation factor of at least 500 to the Great Miami River (GMR). Several such substances were detected in on-site surface soil samples. No surface water samples were collected during the 1991 SSI. Additionally, the site is located within 350 feet of the GMR and is adjacent to its 100-year flood plain. Therefore, PRC assumed that an observed release to the GMR could be documented if sediment samples and additional surface soil samples were collected.

The GMR is not used as a source of drinking water within the 15-mile TDL, and this watershed does not contain a significant number of sensitive environments. However, the GMR is a fishery. Therefore, the surface water pathway score is primarily driven by the human food chain threat.

SOIL EXPOSURE PATHWAY

No scoresheets for the soil exposure pathway are included. Soil samples collected during the 1991 SSI indicate that 1,2-dichloroethene, tetrachloroethene, toluene, PCBs, antimony, arsenic, barium, cadmium, chromium, mercury, nickel, lead, zinc, and several polynuclear aromatic hydrocarbons (PAH) are present at elevated concentrations in on-site surface soil. Much of the site is vegetated; therefore, extensive soil contamination is unlikely. Also, no residences, schools, day-care facilities, or terrestrial sensitive environments are located on site or within 200 feet of areas of suspected contamination. Because of the lack of targets, the pathway contributes only minimally to the overall site score.

AIR MIGRATION PATHWAY

No scoresheets for the air pathway are included because the pathway contributes only minimally to the overall site score. No air releases have been documented. The site's air curtain destructor operated only briefly in 1970 and is currently inactive. Also, much of the site is vegetated. No odors or airborne particulates were noted during the site reconnaissance, and the site is not known to contain sources of hazardous substances that are likely to cause a release of hazardous gas.

South Dayton Dump
Moraine, Ohio
OHD 980 611 388

WORKSHEET FOR COMPUTING PRELIMINARY HRS SITE SCORE

		Pathway Score (S)	Pathway Score Squared (S^2)
1.	Groundwater Migration Pathway Score (S_{gw})	83.20	6,922.24
2a.	Surface Water Overland/Flood Migration Component (S_{of})	100	10,000
2b.	Groundwater to Surface Water Migration Component (S_{gs})	NI	NI
2c.	Surface Water Migration Pathway Score (S_{sw}) (Enter the larger of lines 2a and 2b.)	100	10,000
3.	Soil Exposure Pathway Score (S_s)	NI	NI
4.	Air Migration Pathway Score (S_a)	NI	NI
5.	$S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2$		16,922.24
6.	**HRS Site Score** (Divide the value on line 5 by 4.0 and take the square root.)		65.04

NI = Score not included because available information suggests that the pathway contributes little to the overall site score

South Dayton Dump
Moraine, Ohio
OHD 980 611 388

SOURCE CHARACTERIZATION WORKSHEET

Source: Landfill

A. Source Dimensions and Hazardous Waste Quantity

Hazardous Constituent Quantity: NE

Hazardous Waste Stream Quantity: NE

Volume: NE

Area: 30 acres x (43,569 square feet/acre) / 3,400 = 384

Area of Observed Contamination: NE

B. Hazardous Substances Associated with the Source

Hazardous Substance	Available to Pathway						
	Air		Ground-water (GW)	Surface Water (SW)		Soil	
	Gas	Particulate		Overland/ Flood	GW to SW	Resident	Nearby
1,2-Dichloroethene (total)	No	No	Yes	Yes	Yes	Yes	Yes
Tetrachloroethene	No	No	Yes	Yes	Yes	Yes	Yes
Toluene	No	No	Yes	Yes	Yes	Yes	Yes
Polychlorinated biphenyls	No	No	Yes	Yes	Yes	Yes	Yes
Antimony	No	No	Yes	Yes	Yes	Yes	Yes
Arsenic	No	No	Yes	Yes	Yes	Yes	Yes
Barium	No	No	Yes	Yes	Yes	Yes	Yes
Cadmium	No	No	Yes	Yes	Yes	Yes	Yes
Chromium	No	No	Yes	Yes	Yes	Yes	Yes
Lead	No	No	Yes	Yes	Yes	Yes	Yes
Mercury	No	No	Yes	Yes	Yes	Yes	Yes
Nickel	No	No	Yes	Yes	Yes	Yes	Yes
Zinc	No	No	Yes	Yes	Yes	Yes	Yes
Phenanthrene	No	No	Yes	Yes	Yes	Yes	Yes

South Dayton Dump
Moraine, Ohio
OHD 980 611 388

Hazardous Substance	Available to Pathway						
	Air		Ground-water (GW)	Surface Water (SW)		Soil	
	Gas	Particulate		Overland/ Flood	GW to SW	Resident	Nearby
Benzo[a]anthracene	No	No	Yes	Yes	Yes	Yes	Yes
Naphthalene	No	No	Yes	Yes	Yes	Yes	Yes
2-Methylnaphthalene	No	No	Yes	Yes	Yes	Yes	Yes
Dibenzofuran	No	No	Yes	Yes	Yes	Yes	Yes
Pyrene	No	No	Yes	Yes	Yes	Yes	Yes
Chrysene	No	No	Yes	Yes	Yes	Yes	Yes
Bis(2-ethylhexyl)phthalate	No	No	Yes	Yes	Yes	Yes	Yes
Benzo(b)fluoranthene	No	No	Yes	Yes	Yes	Yes	Yes
Indeno(1,2,3-cd)pyrene	No	No	Yes	Yes	Yes	Yes	Yes
Benzo(g,h,i)perylene	No	No	Yes	Yes	Yes	Yes	Yes
Fluoranthene	No	No	Yes	Yes	Yes	Yes	Yes

NE = Not evaluated because of lack of information

GROUNDWATER PATHWAY SUMMARY

	Comments	References
•	No observed releases to groundwater have been documented. However, surface soil contamination was detected at levels significantly above background. Also, no liner is present at the site, and groundwater is present at about 25 feet below ground surface. Therefore, PRC assumed that an observed release to groundwater could be documented with the installation and sampling of monitoring wells.	E&E 1991
•	PRC assumed an observed release of a hazardous substance with a toxicity value of 10,000. Per Section 3.2.1.2 of the HRS Final Rule, a mobility factor of 1 was assigned because an observed release was assumed.	E&E 1991; EPA 1990; EPA 1994
•	The site's hazardous waste quantity factor value was calculated based on the area of the landfill being 30 acres (1,306,800 square feet), which resulted in a factor value of 100 per Table 2-6 of the HRS Final Rule. Based on this factor value, a value of 32 was assigned to the waste characteristics factor category per Table 2-7 of the HRS Final Rule.	E&E 1991; EPA 1990
•	The wells nearest to the site are residential wells and are located within 0.25 mile of the site. Therefore, a nearest well factor value of 20 was assigned per Table 3-11 of the HRS Final Rule.	Frost 1994; EPA 1990
•	Because private and municipal wells supply groundwater for use as the primary source of drinking water for the area, PRC assumed that groundwater is also used as a recreational resource within 4 miles of the site. Therefore, a resource factor value of 5 was assigned per Section 3.3.3 of the HRS Final Rule.	EPA 1990
•	The site is located within a secondary designated wellhead protection area, and an observed release to groundwater was assumed. Therefore, a wellhead protection area factor value of 20 was assigned per Section 3.3.4 of the HRS Final Rule.	MVRPC 1990; EPA 1990
•	Drinking water for the area is drawn from a sand and gravel aquifer. This unit was evaluated as a single source aquifer because of the absence of a continuous confining layer.	E&E 1991
•	The following table provides information regarding the groundwater target population associated with the site.	

Distance (Miles)	No. of Residential Wells	Population Served by Residential Wells	No. of Municipal Wells	Population Served by Municipal Wells	Total Population	References
0-1/4	1	2	0	0	2	Frost 1994
1/4-1/2	1	2	0	0	2	Frost 1994
1/2-1	7	17	0	0	17	Frost 1994
1-2	30	69	0	0	69	Frost 1994
2-3	61	149	16	21,248[a]	21,397	Frost 1994; PRC 1994b; PRC 1994c; PRC 1994d; PRC 1995a; PRC 1995b; PRC 1995c
3-4	146	323	3	15,000[b]	15,323	Frost 1994; PRC 1994e

Notes:

[a] Seven production wells supply water to 9,500 people in the City of Oakwood. Nine standby production wells for Montgomery County supplying 10 percent of the total water to 117,483 people, apportioned to 11,748 people in several area townships and cities. The standby wells are used only for emergency purposes, such as in the event that the City of Dayton municipal well system experiences a water shortage. The population estimate of 117,480 people is based on a total of 47,182 services and a population density of 2.49 persons per household.

2 These 15,000 people are served by three West Carrollton production wells.

South Dayton Dump
Moraine, Ohio
OHD 980 611 388

GROUNDWATER PATHWAY SCORESHEET

	Factor Categories and Factors	Maximum Value	Value Assigned	
	Likelihood of Release to an Aquifer			
1.	Observed Release	550	550	
2.	Potential to Release			
	2a. Containment	10	0	
	2b. Net Precipitation	10	0	
	2c. Depth to Aquifer	5	0	
	2d. Travel Time	35	0	
	2e. Potential to Release [lines 2a x (2b +2c + 2d)]	500	0	
3.	Likelihood of Release [higher of lines 1 and 2e]	550		550
	Waste Characteristics			
4.	Toxicity/Mobility	a	10,000	
5.	Hazardous Waste Quantity	a	100	
6.	Waste Characteristics	100		32
	Targets			
7.	Nearest Well	50	20	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	345	
	8d. Population [lines 8a + 8b + 8c]	b	345	
9.	Resources	5	5	
10.	Wellhead Protection Area	20	20	
11.	Targets [lines 7 + 8d + 9 + 10]	b		390
	Groundwater Migration Score for an Aquifer			
12.	Aquifer Score [lines (3 x 6 x 11)/82,500][c]	100		83.20
13.	**Groundwater Pathway Score (S_{gw})[c]**	100		83.20

a Maximum value applies to waste characteristics category
b Maximum value not applicable
c Do not round to nearest integer

South Dayton Dump
Moraine, Ohio
OHD 980 611 388

SURFACE WATER PATHWAY SCORESHEETS

	Comments	References
•	No observed releases to surface water have been documented. However, surface soil contamination was detected at levels significantly above background. The GMR is located within 350 feet of the site, which is also adjacent to the 100-year flood plain of the river. Therefore, PRC assumed that an observed release to the GMR could be documented if sediment samples and additional surface soil samples were collected. An observed release was also assumed to calculate the surface water pathway score.	E&E 1991
•	PRC assumed an observed release of a hazardous substance with a toxicity value of 10,000, a persistence value (river) of 1, freshwater bioaccumulation values (food chain and environmental) of 50,000, and a freshwater ecotoxicity value of 10,000. The site's hazardous waste quantity factor value was calculated based on the area of the landfill being 30 acres (1,306,800 square feet), which resulted in a factor value of 100 per Table 2-6 of the HRS Final Rule. Based on these factor values, values of 32 and 320 were assigned to the waste characteristics factor category for the drinking water and human food chain/environmental threats, respectively, per Table 2-7 of the HRS Final Rule.	E&E 1991; EPA 1990; EPA 1994
•	No surface water intakes for drinking water withdrawal exist within 15 miles downstream of a possible point of entry (PPE) along the GMR, but several intakes exist for industrial water withdrawal.	PRC 1994a; EPA 1990
•	The GMR is used for recreational purposes, including fishing. An estimated 5,000 pounds of fish is caught and consumed annually within 15 miles downstream of the site; therefore, a human food chain population value of 3 was assigned per Table 4-18 of the HRS Final Rule.	PRC 1994a; EPA 1990
•	For water years 1950 to 1993, the GMR had a mean annual flow rate of 2,208 cubic feet per second at Dayton, Ohio. Therefore, a surface water dilution weight of 0.001 for a large stream to river was assigned per Table 4-13 of the HRS Final Rule.	USGS 1994; EPA 1990
•	Because PRC assumed an observed release of a hazardous substance with a potential bioaccumulation factor of 500 or greater, the GMR fishery was assumed to be exposed to actual contamination. Therefore, a food chain individual score of 45 was assigned per Sections 4.1.3.3 and 4.1.3.3.1 of the HRS Final Rule.	EPA 1990

- A food chain population value of 3 was assigned from Table 4-18 of the HRS Final Rule. — EPA 1990
- No endangered or threatened species are known to exist in habitats in or along the GMR. — USFW 1994
- Between 1 and 2 linear miles of wetland habitat exists along the GMR within 15 miles of the site. Therefore, a wetlands rating value of 50 was assigned per Table 4-24 of the HRS Final Rule. Using the surface water dilution rate of 0.001, an environmental threat potential contamination target value of 0.005 was calculated per Section 4.1.4.3.1.3 of the HRS Final Rule. — DOI 1988; EPA 1990

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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor Categories and Factors			Maximum Value	Value Assigned	
Drinking Water Threat					
	Likelihood of Release				
1.	Observed Release		550	550	
2.	Potential to Release by Overland Flow				
	2a.	Containment	10	0	
	2b.	Runoff	25	0	
	2c.	Distance to Surface Water	25	0	
	2d.	Potential to Release by Overland Flow [lines 2a x (2b + 2c)]	500	0	
3.	Potential to Release by Flood				
	3a.	Flood Containment	10	0	
	3b.	Flood Frequency	50	0	
	3c.	Potential to Release by Flood [lines 3a x 3b]	500	0	
4.	Potential to Release [lines 2d + 3c]		500	0	
5.	Likelihood of Release [higher of lines 1 and 4]		550		550
	Waste Characteristics				
6.	Toxicity/Persistence		a	10,000	
7.	Hazardous Waste Quantity		a	100	
8.	Waste Characteristics		100		32
	Targets				
9.	Nearest Intake		50	0	
10.	Population				
	10a.	Level I Concentrations	b	0	
	10b.	Level II Concentrations	b	0	
	10c.	Potential Contamination	b	0	
	10d.	Population [lines 10a + 10b + 10c]	b	0	
11.	Resources		5	0	
12.	Targets [lines 9 + 10d + 11]		b	0	
13.	**Drinking Water Threat Score** [lines (5 x 8 x 12)/82,500][c]		500		0

a Maximum value applies to waste characteristics category
b Maximum value not applicable
c Do not round to nearest integer

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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
(Continued)

	Factor Categories and Factors	Maximum Value	Value Assigned	
	Human Food Chain Threat			
	Likelihood of Release			
14.	Likelihood of Release [same value as line 5]	550		550
	Waste Characteristics			
15.	Toxicity/Persistence/Bioaccumulation	a	5×10^8	
16.	Hazardous Waste Quantity	a	100	
17.	Waste Characteristics	1,000		320
	Targets			
18.	Food Chain Individual	50	45	
19.	Population			
	19a. Level I Concentrations	b	0	
	19b. Level II Concentrations	b	3	
	19c. Potential Contamination	b	0	
	19d. Population [lines 19a + 19b + 19c]	b	3	
20.	Targets [lines 18 + 19d]	b		48
21.	**Human Food Chain Threat Score** [lines (14 x 17 x 20)/82,500][c]	100		100

a Maximum value applies to waste characteristics category
b Maximum value not applicable
c Do not round to nearest integer

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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET (Continued)

	Factor Categories and Factors	Maximum Value	Value Assigned	
	Environmental Threat			
	Likelihood of Release			
22.	Likelihood of Release [same value as line 5]	550		550
	Waste Characteristics			
23.	Ecosystem Toxicity/Persistence/ Bioaccumulation	a	5×10^8	
24.	Hazardous Waste Quantity	a	100	
25.	Waste Characteristics	1,000		320
	Targets			
26.	Sensitive Environments			
	26a. Level I Concentrations	b	0	
	26b. Level II Concentrations	b	0	
	26c. Potential Contamination	b	0.005	
27.	Targets [lines 26a + 26b + 26c]	b		0.005
28.	**Environmental Threat Score** [lines (22 x 25 x 27)/82,500]	60		0.011
	Surface Overland/Flood Migration Component Score for a Watershed			
29.	Watershed Score [lines 13 + 21 + 28][c]	100		100
30.	**Surface Water Overland/Flood Migration Component Score (S_{of})** [highest score from line 29 for all watersheds evaluated][c]	100		100

a Maximum value applies to waste characteristics category
b Maximum value not applicable
c Do not round to nearest integer